

AMENDMENTS TO THE CLAIMS

Claims 1-11 (Cancelled)

12. (Currently amended) A method for reshaping the cornea of an eye, said method comprising the steps of:

focusing a pulsed laser beam within the stroma of the cornea to photoalter stromal tissue at a focal point, said pulsed laser beam having an optimized pulse energy density above a minimum level for achieving tissue modification;

moving said focal point of said pulsed laser beam along a predetermined path within the stroma of the cornea to photoalter a layer of stromal tissue, said layer being an interface between the interior surface of a removable corneal layer and a bed of stromal tissue;

incising the cornea between the anterior surface of the cornea and the layer to create a peripheral edge for said removable corneal layer, said peripheral surface comprising a sidewall disposed at an angle relative to the anterior surface, said removable corneal layer substantially overlying said bed of stromal tissue;

lifting said removable corneal layer to expose said bed of stromal tissue;

photoaltering at least a portion of said bed of stromal tissue; and

replacing said removable corneal layer over said photoaltered bed of stromal tissue.

13. (Previously Presented) A method as recited in claim 12 wherein said photoaltered portion is lens-shaped having an anterior surface, a posterior surface, and an annular surface.

14. (Original) A method as recited in claim 13 wherein said anterior surface is concave shape.

15. (Original) A method as recited in claim 13 wherein said posterior surface is convex shape.

16. (Original) A method as recited in claim 13 wherein said anterior surface is convex shape.

17. (Original) A method as recited in claim 12 wherein said bed of stromal tissue has a boundary and said boundary is substantially in the shape of a circle.

18. (Original) A method as recited in claim 12 wherein said bed of stromal tissue has a boundary and said boundary is substantially in the shape of an oval.

19. (Original) A method as recited in claim 12 wherein said photoaltering step is accomplished using an excimer laser.

20. (Previously Presented) The method of claim 38 wherein said peripheral edge of said flap is formed with a tab to assist in lifting and repositioning of said flap.

21. (Previously Presented) The method of claim 38 wherein said peripheral edge of said flap is formed with an interlocking feature to hold said flap in place after said repositioning step.

22. (Original) A method as recited in claim 12 wherein said photoaltering step is accomplished using a pulsed infrared laser.

23. (Original) A method as recited in claim 12 wherein said photoaltering step is accomplished using a visible pulsed laser.

24. (Currently Amended) A method for accessing internal corneal tissue with a laser, said method comprising the steps of:

defining an anterior internal surface having a first periphery and a posterior internal surface having a second periphery in the stroma by directing the focal point of a laser beam along a first predetermined path to photodisrupt overlapping areas of stromal tissue, said laser beam having an optimized pulse energy density above a minimum level for achieving tissue modification; and

defining an access to the anterior internal surface and the posterior internal surface by directing the focal point of a laser beam along a second predetermined path to photodisrupt overlapping areas of stromal tissue to create a sidewall, said predetermined path sidewall extending from the first and second peripheries to the outer surface of the cornea at an angle relative to the posterior inner surface.

25. (Previously Presented) The method of claim 24, wherein the step of defining the anterior internal surface and the posterior internal surface includes the step of forming the first predetermined path in the pattern of a spiral.

26. (Previously Presented) The method of claim 24, wherein the step of defining the anterior internal surface and the posterior internal surface includes the steps of forming a first path to define the anterior surface and a second path to define the posterior surface.

27. (Previously Presented) The method of claim 24, wherein the anterior internal surface and the posterior internal surface coincide.

28. (Previously Presented) The method of claim 27, wherein the first periphery and the second periphery coincide.

29. (Previously Presented) The method of claim 26, and further including the steps of forming the anterior internal surface in a convex shape and, forming the posterior internal surface in a concave shape such that a lens-shaped body of stromal tissue is formed between the two surfaces.

30. (Previously Presented) The method of claim 29, and further including the step of removing the lens-shaped body through an opening formed along the second predetermined path.

31. (Previously Presented) The method of claim 24, and further including the step of forming the second predetermined path in a spiral pattern starting at the first and second peripheries and extending to the outer surface of the cornea.

32. (Previously Presented) The method of claim 24, and further including the step of forming the anterior internal surface in a concave shape.

33. (Previously Presented) The method of claim 24, and further including the step of forming the posterior internal surface in a concave shape.

34. (Previously Presented) The method of claim 24, and further including the step of forming the anterior internal surface in a convex shape.

35. (Previously Presented) The method of claim 24, and further including the step of forming the posterior internal surface in a convex shape.

36. (Previously Presented) The method of claim 24, and further including the step of forming the anterior internal surface and the posterior internal surface substantially in the shape of a circle.

37. (Previously Presented) The method of claim 24, and further including the step of forming the anterior internal surface and the posterior internal surface substantially in the shape of an oval.

38. (Previously Presented) The method of claim 12 wherein said removable layer remains attached to the cornea at a hinge, creating a flap with a peripheral edge.

39. (New) The method of claim 12, wherein the minimum pulse energy density for achieving tissue modification is at least 10 microJoule/(10 micron)².

40. (New) The method of claim 24, wherein the minimum pulse energy density for achieving tissue modification is at least 10 microJoule/(10 micron)².